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Search Results - Record(s) 11 through 13 of 13 returned.

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11. Document ID: US 4928233 A

L4: Entry 11 of 13 File: USPT May 22, 1990

US-PAT-NO: 4928233
DOCUMENT-IDENTIFIER: US 4928233 A

TITLE: System for providing three dimensional object descriptions

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

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12. Document ID: US 4922520 A

L4: Entry 12 of 13 File: USPT May 1, 1990

US-PAT-NO: 4922520
DOCUMENT-IDENTIFIER: US 4922520 A

TITLE: Automatic telephone polling system

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

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13. Document ID: US 4870591 A

L4: Entry 13 of 13 File: USPT Sep 26, 1989

US-PAT-NO: 4870591
DOCUMENT-IDENTIFIER: US 4870591 A

TITLE: System for ensuring device compatibility

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

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Terms	Documents
L3 and (order$ and (display$ with (rack or hook)))	13

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1. Document ID: US 6089453 A

L4: Entry 1 of 13 File: USPT Jul 18, 2000

US-PAT-NO: 6089453
DOCUMENT-IDENTIFIER: US 6089453 A

TITLE: Article-information display system using electronically controlled tags

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw. De

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2. Document ID: US 6034687 A

L4: Entry 2 of 13 File: USPT Mar 7, 2000

US-PAT-NO: 6034687
DOCUMENT-IDENTIFIER: US 6034687 A

TITLE: Graphical interface for a computer hardware resource having a surrealistic image of a real office machine

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw. De

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3. Document ID: US 5987528 A

L4: Entry 3 of 13 File: USPT Nov 16, 1999

US-PAT-NO: 5987528
DOCUMENT-IDENTIFIER: US 5987528 A

TITLE: Controlling the flow of electronic information through computer hardware

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw. De

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4. Document ID: US 5974468 A

L4: Entry 4 of 13 File: USPT Oct 26, 1999

US-PAT-NO: 5974468
DOCUMENT-IDENTIFIER: US 5974468 A

TITLE: Controlling the flow of electronic information through a modem

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw De

☐ 5. Document ID: US 5922071 A

L4: Entry 5 of 13 File: USPT Jul 13, 1999

US-PAT-NO: 5922071
DOCUMENT-IDENTIFIER: US 5922071 A

TITLE: Learning commands which automatically launch a computer program

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw De

☐ 6. Document ID: US 5438614 A

L4: Entry 6 of 13 File: USPT Aug 1, 1995

US-PAT-NO: 5438614
DOCUMENT-IDENTIFIER: US 5438614 A

TITLE: Modem management techniques

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw De

☐ 7. Document ID: US 5138698 A

L4: Entry 7 of 13 File: USPT Aug 11, 1992

US-PAT-NO: 5138698
DOCUMENT-IDENTIFIER: US 5138698 A

TITLE: Method for producing building instructions for three dimensional assemblies

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw De

☐ 8. Document ID: US 5019992 A

L4: Entry 8 of 13 File: USPT May 28, 1991

US-PAT-NO: 5019992
DOCUMENT-IDENTIFIER: US 5019992 A

TITLE: System for designing intercommunication networks

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw De

9. Document ID: US 4985855 A

L4: Entry 9 of 13 File: USPT Jan 15, 1991

US-PAT-NO: 4985855
DOCUMENT-IDENTIFIER: US 4985855 A

TITLE: Method for producing installation instructions for three dimensional assemblies

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

10. Document ID: US 4939668 A

L4: Entry 10 of 13 File: USPT Jul 3, 1990

US-PAT-NO: 4939668
DOCUMENT-IDENTIFIER: US 4939668 A

TITLE: System for designing intercommunications networks

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

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Terms	Documents
L3 and (order$ and (display$ with (rack or hook)))	13

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First Hit Fwd Refs

End of Result Set

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L2: Entry 1 of 1 File: USPT Aug 29, 2000

DOCUMENT-IDENTIFIER: US 6110213 A
TITLE: Fabrication rules based automated design and manufacturing system and method

Brief Summary Text (9):
Siemens has announced an expert system which runs on a personal computer for aiding in the design of power supplies. It collects specifications for the power supply from the user, synthesizes possible structures, and reports the number of feasible solutions for the selected input/output description. The price for a specified quantity and lot size are calculated by the system. The configuration report is sent to the manufacturer's computer over a wide area network and then passed on to the development department.

Brief Summary Text (17):
A wiring station has an input for receiving interconnection specifications for fabricating interconnection components. The interconnection specifications may be for a circuit board and the wiring station fabricates circuit boards or for a wiring harness and the wiring station fabricates wiring harnesses. Additionally, the wiring harness may include a flat multi-conductor cable element and at least two tap elements and the interconnection specifications may include one or more of the following: length and tap or fold and bend location specifications.

Brief Summary Text (21):
The interface may include a layout system in which component locations may be defined in a virtual space. The layout system may include component icons representative of the complement of components. The icons may be moved around the virtual space to define the component locations. The layout system may include a feature allowing the user to manipulate the size or shape of the virtual space. The layout system may include a drawing feature in which the system automatically adjusts the virtual space to fit an arrangement of the component icons. The arrangement may be created by the user. The layout system may include an automatic arrangement feature in which the system automatically arranges the component icons and creates the virtual space to fit the arrangement of the component icons. The virtual space may comprise a flat surface or at least two separate flat surfaces. The component locations and the virtual space may define the mechanical specifications for the custom power supply, including a mounting surface and mounting features.

Brief Summary Text (24):
The complement of components may include a plurality of electrical power converter modules and the component definition system may generate an electrical design and provide an efficiency rating for each of the electrical power converter modules. The system may calculate the total input power required by the electrical power converter modules using the efficiency ratings and the power output of the custom power supply, and select circuitry for a front-end assembly. The system may calculate a total power dissipation for the custom power supply and calculate at least one heatsink dimension.

Brief Summary Text (25):

The system may provide feasibility information to the user regarding one or more of the following conditions: (a) cooling requirements, (b) heatsink dimensions, (c) component orientation, (d) component spacing, (e) safety agency requirements, or (f) output orientation.

Brief Summary Text (26):
The custom power supply may include a user-defined package and the power supply specifications may include at least one of the following details: (a) a shape of the user-defined package, (b) a dimension of the user-defined package, (c) a position of at least one of the components in the user-defined package, (d) an orientation of at least one of the components in the user-defined package.

Brief Summary Text (35):
Interconnection specifications may be provided to the CIM facility for fabrication of interconnection components. The interconnection specifications may be circuit board specifications for fabrication of a circuit board by the CIM facility or wiring harness specifications for fabrication of a wiring harness by the CIM facility. The interconnection specifications may include at least a length and a tap location specification and the wiring harness may comprise a flat multi-conductor cable element and a tap element. The interconnection specifications may also include a fold or bend location specification.

Brief Summary Text (39):
A layout system allowing component locations to be defined within a virtual space may be provided. Component icons representative of the complement of components may also be provided and the user may be allowed to move the icons in the virtual space to define the component locations. The size or shape of the virtual space may be allowed to be manipulated. The virtual space may be automatically adjusted to fit an arrangement of the component icons. The arrangement may be created by the user. The component locations may be automatically arranged and the virtual space adjusted to fit the arrangement. The virtual space may include a representation of a flat surface or a representation of at least two separate flat surfaces. The component locations and the virtual space may define the mechanical specifications for the custom power supply, including a mounting surface and mounting features.

Brief Summary Text (45):
The total power dissipation of the custom power supply and at least one heatsink dimension may be calculated.

Brief Summary Text (46):
Feasibility information may be provided to the user regarding one or more of the following conditions: (a) cooling requirements, (b) heatsink dimensions, (c) component orientation, (d) component spacing, (e) safety agency requirements, or (f) output orientation.

Brief Summary Text (47):
The custom power supply may include a user-defined package and the specifications may include one or more of the following details: (a) a shape of, (b) a dimension of, (c) a position of at least one of the components in, or (d) an orientation of at least one of the components in, the user-defined package.

Brief Summary Text (54):
In one general aspect of the invention, a wiring harness includes a flat cable with a plurality of separate conductors covered with insulating material. A cable tap including a tap conductor has a first portion lying in a plane parallel to the cable at a selected tap location on the cable. A tap connection includes a tap opening in the insulating material of the cable at the tap location exposing a tap area of a selected conductor of the plurality of conductors and an electrical connection formed between the tap conductor and the selected conductor at the tap area.

Brief Summary Text (55):
Implementations of the invention may include one or more of the following features. Laser ablatable insulation may be provided on at least one side of the cable for removal by laser ablation equipment. The laser ablatable insulation may be a polyester film. The tap may further include a tap fold which is folded perpendicular to the cable. The tap fold may be made along an axis parallel to the length of the cable.

Brief Summary Text (56):
The flat cable may include a cable bend along an axis perpendicular to the cable. A cable fold having an axis parallel to the length of the cable may also be provided. A dimple may be disposed in the cable to facilitate forming the cable fold. The dimple may be located substantially along a centerline of the cable prior to formation of the fold.

Brief Summary Text (61):
A power tap having a power tap conductor has a current carrying capacity larger than the tap conductor. A power tap connection includes a power tap opening in the insulating material of the cable at the power tap location exposing a power tap area of the power conductor. An electrical power connection is formed between the power tap conductor and the selected power conductor through the opening. The power tap area comprises an area which is greater than the tap area. The power tap opening may include a plurality of openings and the electrical power connection may include a plurality of connections.

Brief Summary Text (63):
A selected conductor may have a discontinuity dividing the selected conductor along its length.

Brief Summary Text (65):
In another general aspect of the invention, a method of interconnecting components includes providing a flat multiconductor cable having a plurality of conductors covered with insulation. A section of the cable is cut to have a predetermined length. A portion of insulation from a preselected area is removed to expose a preselected one of the conductors. An electrical tap having a tap conductor is provided. The tap is positioned on the preselected area and the tap conductor is electrically connected to the preselected conductor.

Brief Summary Text (66):
Implementations of the invention may include one or more of the following features. Laser ablation may be used to remove the insulation. A bonding agent may be applied to the cable in an area around the preselected area for mechanically securing the tap to the cable. An insulating layer may be applied to cover the preselected area. The cable may be folded along an axis aligned with the length of the cable. The cable may be bent along an axis perpendicular to the length of the cable. A discontinuity may be formed in a preselected one of the plurality of conductors. The cable may include a plurality of control conductors and at least two power distribution conductors. The electrical connection may be formed by soldering.

Brief Summary Text (67):
In another general aspect of the invention, a electrical apparatus includes two or more component modules, each occupying a respective volume having respective overall height, width, and length dimensions, and at least two electrical connection terminals. A planar interconnection structure has a first and a second conductive layer separated by insulation. The planar structure is adapted for making connection to the electrical connection terminals of each component module and for lying in a space along an edge of the respective volume within the overall height dimension and without being located adjacent to more than three sides of each module. The planar structure provides electrical connections between the

electrical connection terminals.

Brief Summary Text (68):
Implementations of the invention may include one or more of the following features. The planar interconnect structure may include circuit board material having a conductive layer which is cut and routed in the fashion of a point-to-point wire cable. The modules may have an indentation and the planar structure may have a width adapted to fit within the indentation. The electrical connection terminal may include a pin having a portion generally perpendicular to the board at a connection point. A hole for accepting the pin and a conductive eyelet in the hole and electrically connected to the first conductive layer may be provided for making electrical connection to the pin. An insulative sleeve may be used to provide insulation between the eyelet and the second conductive layer. The first and second conductive layers may comprise power conductors. A third conductive layer is separated from the first conductive layer by insulation and includes at least two signal lines formed by removing conductive material from the third conductive layer. Jumper landings make electrical connection between a selected one of the connection terminals and a selected one of the signal lines.

Brief Summary Text (70):
In another general aspect of the invention, a method of interconnecting components includes providing a flat multilayer laminate having a plurality of conductive layers separated by insulation. A section of the laminate is cut to have a predetermined shape. Portions of an exposed one of the conductive layers is removed by machining to form a plurality of conductive traces. A hole is machined in the laminate to form a connection to a preselected one of the conductive layers. The hole has a first width in the preselected layer and a second larger width in the other conductive layers. A conductive eyelet is inserted into the hole for making contact with the preselected one of the conductive layers.

Drawing Description Text (12):
FIGS. 10A and 10B show side and end views of a length of cable.

Drawing Description Text (17):
FIG. 15 shows a fabrication line for assembling a length of cable of the kind shown in FIGS. 9 and 10.

Drawing Description Text (38):
FIGS. 35A and 35B are top views of minimum width and maximum width snake circuit board solutions for a power system layout.

Detailed Description Text (3):
output voltage ratings (e.g., 48 V nominal input, 5 V output; or 300 V nominal input, 48 V output), the maximum amount of power which can be delivered by a power converter module in a particular package is related to the package size. A converter module in package style 10 might be rated to deliver up to 150 Watts of output power at a baseplate 5 temperature rating of 100 degrees Celsius for example. Similarly, converter modules in package styles 20 and 30 might be respectively rated to deliver up to 250 and 600 Watts of output power at the same 100 degrees C baseplate temperature.

Detailed Description Text (12):
In the power supply 40 of FIG. 2A, the front-end AC-DC converter module 55 may be made a power-factor correcting module ("PFC module"). A PFC module presents an essentially unity power factor load to the AC utility source while delivering a regulated DC output voltage to the inputs of all of the DC-DC converters 20a, 20b, 30a. Alternatively, module 55 may include front-end circuitry to perform conventional rectification of the AC input and provide input surge current limiting. In either case, the output filter capacitors which are typically used at the output of the AC-DC converter module 55 may be provided in a separate capacitor

assembly (called the "HUB") 92 as shown in FIG. 2A. One advantage of physically separating the filter capacitors from the power supply assembly 40 is that it allows the overall height of the power supply 40 to be minimized. Another advantage is that the HUB 92 is thermally decoupled from the relatively high operating temperatures of the power supply 40 assembly. Since mean time before failure ("MTBF") and physical volume of electrolytic capacitors typically used for such filtering applications are temperature dependent, this allows for a reduction in capacitor size and improvement in capacitor MTBF. Another advantage is that the customer may change the amount of capacitance after the power supply 40 is manufactured thereby changing certain operating characteristics such as the ride-through and hold-up times. In conventional power supplies where the capacitors are typically mounted on a printed circuit board, the capacitance is fixed because the printed circuit board is designed to accept a fixed number of capacitors of a particular size. The HUB 92 is connected to the output pins 57 of the AC-DC converter by means of cable 66 and connector 64 and traces (not shown) on PCB 70. The length of cable 66 may be specified by the customer.

Detailed Description Text (16):
One way to provide heat sinking for the assembly 40 of FIG. 2A is to put fins 85 on some or all of the entire rear surface 83 of the mounting plate 80, as shown in FIG. 3A. A separate heat sink assembly 93 may be attached to the rear surface 83 of the heat sink plate 80, as shown in FIG. 3B. Alternatively, an integral heatsink and mounting plate may be fabricated by starting with a plate 80 of suitable thickness and machining fins 85 to the desired thickness and height. Alternatively, an integral heatsink and mounting plate may be fabricated from extruded heatsink stock. The size of the plate 80 and the thermal loss in the power supply 40 will vary from design to design. The heat sinking approach of FIGS. 3A and 3B therefore requires a wide range of customization because each power supply assembly will present its unique heat sink requirements.

Detailed Description Text (18):
One advantage of providing individual heat sinks as illustrated in FIG. 4 is that customized heatsinking of a wide variety of power supply assemblies 40 may be provided using a few standardized heat sinks. Each standardized heatsink is made to conform to the baseplate layout of a particular module size, e.g., micro, mini, and maxi as shown in FIG. 1. Since the heat sources are concentrated in the modules, locating finned heat sinks directly at the mounting locations 88 of the modules provides very little loss in cooling effectiveness relative to that provided by fins over the entire surface 83 (FIG. 3a). Alternatively where fin height is a concern, the individual heatsinks may be made to occupy a greater area than that of the baseplate while still conforming to the mounting holes of the converter module baseplates.

Detailed Description Text (23):
A reference linear dimple 405 runs along the length of the cable, as shown in FIG. 10B. The reference dimple 405 aids in properly folding the cable 400 after the power, control signal, and module taps are connected. The dimple 405 may also be used as a position reference while placing and assembling the taps onto the cable provided that the dimple location is maintained within acceptable tolerances during manufacture.

Detailed Description Text (26):
FIGS. 13 and 14 show, respectively, two different size module taps 460, 470. Module tap 460 is used for making connections between power conductors 410, 420 and control conductors 431-436 of the snake cable and the input pins 33, 33a, 23, 23a of 800 and 900 series modules (modules 20b

Detailed Description Text (28):
The cable system allows flexible assembly. Both the length of the cable 400, and the quantity and locations of the module taps, may be adapted to connect virtually

any number of converter modules to a standardized pattern of power and control pins on a front-end assembly PCB 70. Once the locations of the converter modules have been defined, the relative positions of the power, control signal and module taps may easily be determined, either by manual measurement or by computer. For example, if a set of converter modules 10b, 20b, 30b and a front-end assembly PCB 70 are arranged as shown in FIG. 9, the length of the cable 400 may be determined by: summing (a) the distance, L1, from the first control pin 74a, past the ends of the two converter modules 10b, 20b, to the point at which the cable takes its first bend 437 (just beyond edge 73 of PCB 70), (b) the distance, L2, from the bend 437 to the point at which the cable takes its second bend 438, (c) the distance, L3, which extends just beyond the furthest power pin 33 on module 30b, and (d) a fixed amount of additional distance L4 to provide a small amount of material (e.g., 1/4 inch) to extend beyond the connection points at the either end of the cable. The types of module taps to be used, and the locations of the taps on the cable 40, are also readily determined based on the types of modules used and the position of each module relative to the control signal and power pins 72, 74 on the front-end PCB 70.

Detailed Description Text (29):
Once the length of the cable 400 and the types and locations of the module taps have been determined, the cable can be assembled. One way to assemble the cable is shown in FIG. 15. In the figure a reel of cable 502 feeds cable into a cutting device 504. The cutting device cuts a length of cable 400 in accordance with cable length information 505 delivered to it (e.g., cable length equals "X"). The cut length of cable 400 is then delivered to an insulation removal system 506 in which portions of the snake cable conductors are exposed by burning portions of the outer insulating layers away with a laser 507. For example, polyester film disintegrates during laser ablation. Other methods may be used to remove the insulation such as chemical decomposition, sand blasting, physical abrasion, and cutting. The locations along the cable 400 at which insulation is removed is determined on the basis of the kinds and locations of the power, control signal, and module taps and the pre-defined connections between control lines 431-436 and module control pins 13a, 23a, 33a.

Detailed Description Text (32):
After the taps are connected to the cable and insulated, the cable assembly 403 is delivered to workstation 510, at which the cable is folded along its length (at the reference dimple 405) and the front-end power and control signal taps are folded at 90 degree angles to the cable as shown as folded cable 481 in FIG. 18. Cable specifications are also provided to the folding station 510 to provide the locations of the bends in the cable, e.g., bends 437, 438 (FIG. 9). The resulting snake cable 480 (FIG. 9) allows for connection to a standard front-end PCB 70 while maintaining the cable conductors in a flat, vertical, orientation suitable for snaking within a very narrow channel. The cable 480 forms a low profile bus tape that may be "snaked" around and between converter modules, thereby increasing packaging density by saving space which would otherwise be required for routing bundles of interconnection wires.

Detailed Description Text (34):
An alternative to the snake cable 480, discussed above, employs a narrow multilayer circuit assembly to carry power and control signals between the front-end assembly and the converter modules. One such assembly, comprising a mulitlayer circuit board assembly 801, and called a "snake circuit board" is shown in FIG. 25. The snake circuit board is particularly well suited for DC-input power supplies in which high input currents dictate heavier conductors between the front-end assembly and the converter modules. Preferably, the snake circuit board is made sufficiently narrow to fit the width of the step 850, (in FIG. 28A). By placing the snake circuit board in the stepped region 850, the snake circuit board does not add to the overall height dimension of the converters. The input terminals of the converter modules pass through holes in the snake circuit board 801 to make contact with their

respective conductors.

Detailed Description Text (35):
Referring to FIG. 29, the snake circuit board is constructed of six layers. Starting from the top the layers are: top thin conductive layer 820, insulating layer 821, heavy conductive layer 822, insulating layer 823, heavy conductive layer 824, and bottom insulating layer 825. Conductive layers 822 and 824 may be, for example, constructed of 0.016 inch thick copper to provide the high current carrying capacity required of the power conductors. The positive and negative outputs of the front-end are connected to conductors 824 and 822, respectively, to carry the power to the inputs of the DC-DC converter modules. The insulating layers may be fabricated from typical printed circuit board materials. For example, layers 821 and 825 may be 0.015 inch thick FR4 insulating material. Similarly, layer 823 may be 0.032 inch thick FR4 material. The top conductive layer 820 which only carries low current signals may be made from 0.0012 inch thick copper.

Detailed Description Text (36):
Referring to FIG. 26, the arrangement of the signal conductors in the top conductive layer 820 of snake circuit board 801 will be described. Three (vs. five in the snake cable example above) control conductors, 805, 807, and 808 are connected to the MCU on the front-end PCB 70 and run the length of the snake circuit board 801. As discussed above, these control lines are used to enable and disable one or more outputs. Each converter module may be connected to any one of the three control conductors as determined by its power-up/down sequencing.

Detailed Description Text (38):
Alternatively, jumpers may be formed by applying an insulating material over the conductive layer 820 between the two jumper landings. The insulation may be applied for example by pad printing an epoxy and subsequently curing the epoxy. Alternatively, solder mask material (such as used in the manufacture of PCBs) may be used in place of the epoxy. After the insulation is applied, a conductive trace between the jumper landings may also be applied, for example by pad printing.

Detailed Description Text (41):
Referring to FIGS. 28, 30, and 33A-33C the power connection between the positive power supply layer 824 and the positive input terminal 826a will be described. A connection hole 816 includes a conductive eyelet 816b and insulating sleeve 816c. Referring to FIGS. 34A and 34B, the hole is made by first drilling a pilot hole of approximately one half the finished hole diameter. Then as shown in FIGS. 34A and 34B, another bit, for example a milling bit 900, is used to route around the hole to finish the hole 816e (FIG. 33A). The routing is performed to remove the conductive material without having any fragments forming shorts between the layers. The hole at 816d is routed to a larger diameter in layers 820-822 (FIG. 33B) to provide for clearance for the insulating sleeve 816c (FIG. 30) and at 816a in layer 825 (FIG. 33C) to countersink the eyelet 816b (FIG. 30). After the eyelet and insulator are inserted into the hole, the eyelet 816b is clinched over to secure it and the insulator 816c in the hole. The eyelet may be solder plated so that a solder joint is formed between the eyelet and the conductive layer 824 when the converter terminal pin is later soldered to the eyelet. As illustrated by the completed hole assembly of FIG. 30, the eyelet makes electrical contact with conductive layer 824 and is insulated from conductive layers 820 and 822.

Detailed Description Text (42):
Referring to FIG. 29 and FIGS. 33A-33C, the hole 817 for making contact to the negative power supply layer 822 is shown enlarged. The process for forming hole 817 is virtually the same as for hole 816 described above. However, the larger diameter portions 817a and 817d of the hole are made respectively in layers 820-821 and 824-825 (FIGS. 33B, 33C) and the insulating sleeve 817c is placed in the bottom portion 817d of the hole (FIG. 29). Insulating layers 821 and 825 and conductive layers 822 and 824 may be made of the same thickness to allow a standard size eyelet and

insulating spacer to be used for both holes 816 and 817.

Detailed Description Text (43):
The snake circuit boards may be fabricated completely from PCB stock using automated machining equipment. The desired snake circuit board shape and size is cut from the stock and the conductive traces are formed in the top conductive layer 820 by cutting channels through the top conductive layer. For example a 0.020 diameter milling bit may be used to separate the traces. Channel 813 separates the fourth conductor 809 from the remainder of the top conductive layer 820 as shown in FIG. 26. Any necessary connection holes may also be machined for example, by routing holes from the top side and then the bottom side. In this way custom snake circuit boards may be fabricated on a lot-of-one basis in a very short time. For volume production, the snake circuit board may be fabricated using customary printed circuit board processing techniques.

Detailed Description Text (49):
FIG. 5 shows a system block diagram of a computer aided design system 100 for configuring power supplies of the kind shown in FIGS. 2 and 9. The system 100 enables users to define and enter functional requirements such as voltage input, voltage outputs, output power levels, thermal environment, and certification requirements for the power system; establish a complement of modular power components such as DC-DC converter modules and front-end components to realize the power system; and define the configuration, shape, and size of the mechanical package for the power system, including the mounting arrangement of the power components on one or more metal mounting plates, as a means of meeting application-specific performance and configuration requirements. The outputs of the design system 100 include mechanical information necessary to machine, or otherwise fabricate, the metal substrate as well as information necessary to create means for connecting the input source to the module input pins and for making connections to converter output pins and other primary and secondary control pins.

Detailed Description Text (60):
The ride-through time (field 209) may be defined as the minimum uninterrupted length of time after the input voltage is removed that the power supply outputs will continue to operate from energy stored in the front-end storage capacitors. The Power Fail entry (field 210) specifies the minimum amount of time after a power fail signal is provided that the power supply outputs will continue to operate within specifications. This information is used by the system 100 to select appropriate capacitors for the HUB 92 (FIGS. 2A, 2B).

Detailed Description Text (66):
The system automatically enforces rules which may limit the design options available to the user to aid in ensuring the feasibility of the design. As discussed further below, the rules may be based on many factors, including limitations imposed by the selected manufacturing materials, processes, and equipment. One example of such a rule relates to the maximum number of control lines available in the wiring system selected to build the power supply 40. The number of control lines available in the wiring system may limit the number of stages in the power-up, power-down, and brown-out control sequences. For example, the snake cable system 480 described above has five separate control lines supporting up to five steps in the sequence as compared to three steps for the snake circuit board 801, and eight or more steps in the hybrid snake system. A full printed circuit board or a serial communication option may allow for even more (or an unlimited number of) steps in the sequence.

Detailed Description Text (67):
Field 216 allows the user to choose whether an output connector, such as ModuMate.TM. connector 90 in FIG. 2A, will be provided to connect to the module output pins. The user may also optionally specify the module size using field 216. The system 100 will then determine how many modules of the specified size are

needed to meet the output specification. The maximum baseplate temperature 217 may also be specified. The user leaves the output specification screen after all of the outputs have been specified.

Detailed Description Text (69):
Referring to block 284 in FIG. 8, the converter modules are designed after the input and output specifications have been collected. The system 100 may connect to the remote computer 190, for example by modem, to generate the designs for the DC-DC converter modules necessary to meet the user-defined input and output specifications. The input and output specifications stored in the design configuration database 180 shown in FIG. 5 are sent to the DC-DC converter design generation process 192 (FIG. 5) which designs the complement of converters required to build the power system 40, as defined by the user and returns the specifications for the converter modules. For example, specifications returned by the design generation process 192 may include the DC-DC converter package size, conversion efficiency, and module part numbers. The system 100 may connect to the remote computer 190 after all of the outputs are specified in step 283 to obtain all of the converter module designs and specifications in a single step. Alternatively, an iterative procedure may be used in which the remote computer is contacted and the specifications obtained for the DC-DC converter(s) for each output after each output is specified in step 283.

Detailed Description Text (70):
Unless the user has chosen to specify DC-DC converter package sizes, the remote converter designer 192 seeks to minimize the volume occupied by the converter modules and thus selects a complement of package sizes required to implement the power system 40 in the least amount of volume. For example, if the user requires that 12 Volts be delivered at 175 Watts, the selection software and rules database will specify an 800 Series package 20, since this is the smallest package which can provide this amount of power. Where the power required for one output voltage exceeds that which can be delivered from a single module, the remote converter designer 192 will specify the requisite number of module packages which will satisfy the output requirements when operated in a power sharing array. For example, the remote DC-DC converter design generator 192 will specify an array of two 900 Series packages, each capable of delivering up to 600 Watts, to satisfy a 48 Volt 850 Watt output requirement. On the other hand, if only 700 watts is required from the 48 Volt output, then the DC-DC converter design generator 192 would specify an array of three 800 Series packages which can deliver the power (250 Watts per module) in less volume than two, larger, 900 Series packages.

Detailed Description Text (71):
After each output's package size, power and efficiency ratings are determined by the remote converter designer 192, this data is returned to the system 100 and stored in the design configuration database 180. A system 192 for automatically generating DC-DC converter designs which are optimized with respect to selected criteria such as efficiency or cost is described in commonly assigned U.S. patent application Ser. No. 08/631,890, Montminy, et al, entitled "Configuring Power Converters" and incorporated here by reference.

Detailed Description Text (86):
The user may specify maximum dimensions for one or more of the outside dimensions of the power supply 40. The user may directly adjust the dimensions of the peripheral edges of the mounting surface (provided that the edges remain outside of the region in which the converters are placed) by dragging the lines with the mouse. Alternatively, the user can adjust the dimensions directly by selecting an edge of the area 230 with the mouse and entering dimensional data directly in field 236 via the keyboard 114. Dimension units are selected using field 235. In field 229, the user may select the mounting plate thickness, e.g., 0.187", 0.25", 0.32", or 0.5" depending on his mechanical and thermal requirements.

Detailed Description Text (88):
The mechanical layout system 160 may alternatively be operated in a "rubber band" periphery mode in which the designer is presented with a display of all of the modules pre-arranged on a mounting surface. A very simple pre-arrangement strategy may be used. For example, DC-DC converters may be lined up side-by-side with their outputs facing one peripheral edge of the mounting surface and front-end components may be lined up side-by-side with their inputs facing a parallel peripheral edge of the surface. The initial mounting surface may default to dimensions just large enough to accommodate the complement of converters and front-end components, subject to positional design rules (e.g., as described below) and cooling requirements. The user may then reposition the modules, power sharing arrays, or front-end components. As the components are moved about, the peripheral edge of the mounting plate will automatically expand or contract like a "rubber band" to align with converter outputs and front-end inputs. Real-time thermal calculations may be performed to ensure that the X, Y and Z dimensions are never smaller than those required to cool the system. The other features described above for the mechanical layout system may also be provided in the rubber band periphery mode.

Detailed Description Text (89):
The mechanical layout system 160 automatically enforces a set of rules stored in the rules database 124 which limit the mechanical layout being created by the user. The rules may be based upon factors which include, but are not limited to, manufacturing process, material, equipment limitations, safety specifications and agency approval specifications, environmental considerations such as temperature and airflow imposed by the thermal analysis and design system 150, and user specified size and shape constraints stored in the design configuration database 180.

Detailed Description Text (90):
Using the rules, the mechanical layout system 160 restricts the placement and orientation of the components and also the size and shape of the power system. In other words, as the user positions and repositions the power component icons and sets the size of the mounting surface, the mechanical layout system will enforce the rules either allowing or not allowing the action attempted by the user. Preferably, a prohibited action is accompanied by a message alerting the user to the problem with, and the rule which prohibits, the attempted action. Several examples of rules which may be imposed by the mechanical layout system are discussed below.

Detailed Description Text (91):
Maximum Size Rule

Detailed Description Text (92):
The maximum allowable size of the mounting plate 80 may be limited by the downstream processes (described below) used in their manufacture. For example, the choice of machining equipment might limit the maximum mounting plate dimensions to 12 inches by 18 inches. Such a manufacturing system limitation may be enforced by the mechanical layout system. The layout area 230 initially may be set to a default size which corresponds to the maximum mounting plate dimensions. The user can then adjust it to the desired size. Alternatively, the size may be set by the user with the system preventing expansion of the size to beyond manufacturable dimensions. For power system designs requiring more than the area provide by the maximum mounting plate size, multiple stacked assemblies may be designed for assembly into a single power system 40. An example of a multiple mounting plate power system is shown schematically in FIG. 19. The system may also enforce rules based upon the user defined specifications such as maximum mounting plate size limitations.

Detailed Description Text (103):
Generally, the modules may be aligned with either the X or Y dimension. In other words each module only may be rotated in 90 degree increments. This orientation

rule also applies to converter modules forming a part of power sharing arrays so that an array is capable of "turning a corner" of the mounting plate.

Detailed Description Text (109):
Referring to block 287 in FIG. 8, the thermal design 150 is performed after the mechanical layout 160 is completed. The thermal environment data entry screen shown in FIG. 7G may be used to specify the thermal environment in which the power system 40 will be operated. The user is prompted to enter values for the maximum ambient air temperature 238, the minimum available rate of air flow 239, and the airflow direction 240. The system presents the user with reduced size layout area 230 to indicate the air flow direction. The maximum heatsink fin height 241 may be specified by the user or a calculated fin height 242 may be provided by the system as shown in FIG. 7G. Additionally, the user may be requested to provide a maximum operating temperature for the mounting plate. Optionally, the system may request an altitude specification for use in the thermal design.

Detailed Description Text (113):
Because of the wide variety of possible mounting plate sizes and shapes, and airflow direction, and component placement on the mounting plate, a finite element model of the thermal design is created and analyzed. The heatsink is divided into a number of equal sized elements. For example, 0.2.times.0.2 inch or 10 mm square elements may be used. Each element would have a central node. Each node is assumed to be isothermal having a uniform temperature. Referring to FIG. 23, a simple nine node example, nodes N1 through N9, of the finite element thermal analysis is illustrated. Each node is shown thermally connected to its adjacent nodes by thermal conductances J. For example, node N1 is connected to nodes N2 and N4 by conductances J.sub.1-2 and J.sub.1-4, respectively. A standard element size may be used for evaluating each design. Using a constant element size, the conductance between each element may be the same constant. For example, the thermal conductance may be 1.25 Watts/degree C for a 6 millimeter thick mounting plate and using 10 millimeter square elements. Optionally, a different conductance value, JF, may be specified for the conductance between elements connected by fins since the fins increase the thermal conductance. Thermal losses along the edges may be ignored as shown in the example of node N1 in FIG. 23. Alternatively, a thermal conductance value for the conduction between a node and an edge may be specified. For example, J/2, may be used to account for edge losses.

Detailed Description Text (114):
The convection conductances, H are also specified for the heatsink. For example the convection conductance from the heatsink to the ambient at node N1 is H.sub.1-C. The convection conductances may be defined as a function of convective film coefficient which may vary along the length of the heatsink as ambient air temperature and airflow vary. For example, air flow from the top of the page toward the bottom in FIG. 23 may yield conductance values of 70, 80, and 90 Watts/degree C-square meter for nodes N1-N3, N4-N6, N7-N9, respectively or 0.007, 0.008, and 0.009 Watts/degree C for 10 millimeter square elements, respectively. Values for the convection conductance may be stored in a look-up table for various heatsink configurations and fin heights.

Detailed Description Text (121):
As described above, the user may enter maximum values for any of the X, Y, or Z dimensions respectively corresponding to the width, length, and height of the power supply 40. The height dimension may limit the height of the heatsink fins available for the power system 40 and thus limit the heatsink options available for the design. Three heatsink options may be provided to satisfy the thermal requirements: 1) a mounting plate with the integral full surface heatsink as shown in FIGS. 3A, 3B, 2) the mounting plate with individual heat sinks as shown in FIG. 4, or 3) a bare mounting plate as shown in FIG. 2A. Height limitations may also affect the component density (module spacing) on the mounting plate. For example, as the height limit is reduced, the surface area requirements to provide adequate cooling

may increase. Whenever the user specifies an X, Y, or Z dimension, the system may default to a value which is the greater of the value specified by the user or the minimum value calculated by the system as necessary to provide adequate cooling.

Detailed Description Text (122):
Optionally, an on-screen display may be provided to show the X, Y and Z dimensions, and total system volume, V, of the power system 40 in real time. A real time side view of the heat sink showing fin density and relative fin height may optionally be provided. Alternatively, the real time computations may be suspended to facilitate faster system response. In such a system the user may request recalculation of the volume or fin height at any time.

Detailed Description Text (128):
Referring to FIGS. 5 and 6, the order entry and manufacturing system 300 will be described. Once a purchase order is actually received, the delivery and price are confirmed again since the circumstances may have changed between the initial quote by remote computer 190 in the project information step and the actual order placement. A pricing system 193 receives the raw DC-DC converter specifications and automatically generates a cost for the converter modules in the manner described in commonly assigned, copending application, Ser. No. 08/635,026, entitled Configuring Power Converters, filed on Apr. 19, 1996, and incorporated here by reference. At the system level, the pricing system 193 uses the aggregate of the DC/DC converter costs previously generated in combination with details contained within the raw system specifications to determine the total system pricing. For example, these details may include cable lengths and quantities, mounting plate geometry, and front-end unit types used and cost algorithms for each such assembly.

Detailed Description Text (130):
Upon receipt of an order from ordering system 330, the production scheduler 340 activates the system manufacturing interface ("SMI") 375. The SMI 375 receives the raw system specifications and generates all of the detailed manufacturing specifications for all of the components necessary to build the system and also generates assembly and test specifications and procedures for the system level assembly. For example, the SMI 375 generates part numbers for all of the parts including those manufactured by manufacturing lines 350 and 360 as well as those that may need to be ordered from outside vendors. All details for each part such as the description and quantity are also provided on the bill of materials ("BOM"). The BOM, including all of the part details, for each system is stored in a database (not shown). The SMI 375 also generates specifications for the (1) internal wiring of the power system potentially including snake cable, snake circuit board, hybrid snake, or standard PCB specifications, (2) output cables, (3) HUB 92 cable, (4) programmable device specifications for the MCU in the PPU, (5) all labels for the system and components in the system, (6) product test specifications, (7) automated machining specifications from the mechanical layout information to fabricate the metal mounting plate and heatsinks if necessary, (8) module specifications for the converter and front-end modules to be manufactured on the module line 350, and (9) assembly instruction display files for workers performing manual assembly tasks.

Detailed Description Text (132):
An additional snake circuit board solution (called the maximum width snake circuit board) may be used to reduce power losses by expanding the snake circuit board to fill all of the available space. Of course, the snake circuit board may not extend beyond the boundaries of the mounting plate or cover any keepout areas, such as the PPU mounting holes defined by the user. A minimum width snake circuit board solution is shown in FIG. 35A for contrast with the maximum width snake circuit board solution for the same layout shown in FIG. 35B. The outline of the maximum width snake circuit board is generated by forming a closed loop in either a clock-wise or counter-clockwise direction starting from the connection points on the front-end through each of the power converters in sequence and returning back to the starting point on the front-end. The top layer signal interconnections are

developed in the same manner as for the minimum width snake circuit board and may be identical to those of the minimum width solution.

Detailed Description Text (133):
The SMI chooses the optimal design solution for the snake based upon the mechanical layout of the power components. This is particularly important for low voltage DC input (e.g., 5-24 VDC) designs because of the higher input currents. First each feasible snake routing possibility is determined. Then the power loss is calculated for each routing using the length of the snake between each module and the front-end and the input current for the respective module. The route with the lowest power loss is chosen as the optimal design solution for the snake. The design details (including the route, overall length, bends, taps, and intermediate dimensions) for the optimal snake are provided to the scheduler 340 for manufacture of the snake cable, snake circuit board, or snake hybrid and assembly of the snake onto the PPU.

Detailed Description Text (141):
An example of a computer integrated manufacturing "CIM" system assembly area is shown in FIG. 24. A computer screen 701A displays customer order information provided by the CIM system at a part kitting station 701 enabling the operator to collect the necessary components to build the system. The SMI provides this information for each order to CRT 701A. At microprocessor programming station 702, the programmable devices for the front-end board are programmed using programming specifications 702A provided by the SMI. The modules, mounting plate, and heatsinks are assembled together at station 703. Bill-of-material and assembly drawing information 703A generated by the SMI are displayed on a CRT near station 703 by the CIM system for reference by the operator. The programmed device is assembled to the front end at station 704 with reference to the assembly drawing displayed at CRT 704A.

Detailed Description Text (145):
In an alternative embodiment, the module design process may be skipped at block 284 (FIG. 8) and a local algorithm may be used to estimate the specifications and packages for the required complement of DC-DC converter modules. This complement of modules would then be used to allow the mechanical, thermal, and options design to be completed. The detailed designs for each of the converter modules would not be generated by the remote module designer 192 (FIG. 5) until the completed system design is sent by the user to the remote computer at step 289 in FIG. 8. Criteria for determining package size based upon deliverable power requirements may be stored (e.g., as tables or algorithms) in the Component Selection Criteria Database 122. After the converter package outlines are estimated the mechanical layout can be performed by the user. This saves time and allows remote users, without modems, to create first-pass designs.

Detailed Description Text (146):
The local system 110 determines the sizes and quantities of DC-DC converter modules required to deliver each specified output voltage based upon specified output power requirements. In general, the amount of power which can be delivered from a particular size DC-DC converter package (e.g., 10, 20, 30, FIG. 1) is a function of output voltage, converter DC input voltage range and maximum baseplate operating temperature. The DC input voltage range for the DC-DC converter modules in the power system 40 may be determined from the input and output specifications. The AC input voltage range and the type of front-end selected will each affect the range of DC voltage input to the DC-DC converter modules. The maximum baseplate temperature specified by the user will be used for the calculation.

Detailed Description Text (147):
Alternatively, the amount of power which can be delivered from each module package size at a particular output voltage can be closely approximated using a look-up table in the selection criteria database 122. The power level for each package size

is calculated. For example, at a maximum baseplate temperature of 100 degrees C and a DC input voltage operating range of 275 to 425 VDC (which conforms to the output voltage range of a power factor correcting front-end module), the maxi module package 30 in FIG. 1 can typically deliver a maximum of 100 Amperes of current (limited by current carrying capacity of output pins 36) at output voltages up to 3.3 Volts; 400 Watts at 5 Volts output; 500 Watts at 15 Volt output; and 600 Watts for output voltages above 24 Volts. Maximum deliverable power at voltages between 3.3 and 24 Volts can be inferred by linear interpolation (or on the basis of additional table entries or algorithms). Similar current limitation and power limitation rules apply to the mini 20 and micro 10 module packages and output pin styles shown in FIG. 1.

CLAIMS:

14. The automated power supply design system of claim 13 wherein said wiring harness comprises a flat multi-conductor cable element and at least two tap elements and said interconnection specifications include at least a length and a tap location specification.

23. The automated power supply design system of claim 22 wherein said layout feature further comprises a feature allowing the user to manipulate the size or shape of said virtual space.

43. The automated power supply design system of claim 42 wherein said system further calculates a total power dissipation of said custom power supply and calculates at least one heatsink dimension.

44. The automated power supply design system of claim 1 wherein said system provides feasibility information to said user regarding at least one of the following conditions:

(a) cooling requirements;

(b) heatsink dimensions;

(c) component orientation;

(d) component spacing;

(e) safety agency requirements; or

(f) output orientation.

45. The automated power supply design system of claim 1 wherein said custom power supply further comprises a user-defined package and said specifications further comprise at least one of the following details:

(a) a shape of said user-defined package;

(b) a dimension of said user-defined package;

(c) a position of at least one of said components in said user-defined package;

(d) an orientation of at least one of said components in said user-defined package.

61. The method of claim 60 further comprising calculating a total power dissipation of said custom power supply and calculating at least one heatsink dimension.

62. The method of claim 51 further comprising providing feasibility information to

said user regarding at least one of the following conditions:

(a) cooling requirements;

(b) heatsink dimensions;

(c) component orientation;

(d) component spacing;

(e) safety agency requirements; or

(f) output orientation.

First Hit Fwd Refs

End of Result Set

Generate Collection Print

L5: Entry 1 of 1 File: USPT Jun 9, 1987

DOCUMENT-IDENTIFIER: US 4671417 A
TITLE: Pre-pack product display system with support fixture

Brief Summary Text (9):
An example of the kinds of support fixtures which have been utilized heretofore is to be found in U.S. Pat. No. 3,273,844 to Hodson, et al. Hodson's display hook is adapted to fit in a horizontal wall slot and contains a three-dimensional triangular projection from a lower plate having a pointed, triangular end for piercing the wall to lock the hook thereto.

Brief Summary Text (11):
In U.S. Pat. No. 3,252,678 to Myers, et al., a display support is disclosed which may be utilized with a thin, panel-like material containing vertical, rectangular slots, but provides little resistance to lateral or upward forces acting upon the support.

Brief Summary Text (19):
These objects are preferably accomplished in a support fixture having one end cantilevered outwardly from the stand at a slight inclination to the horizontal when the stand is in an upright position for suspending the product therefrom, and a mounting end adapted to permit insertion from one side only of a display stand into a horizontal, rectangular mounting aperture contained in the stand, the mounting end having means located thereat for gripping the support stand material through the rectangular aperture and for coupling loads applied to the fixture from any direction to the support stand such that the fixture is resistant to withdrawal from the mounting aperture regardless of the attitude of the support stand, the support stand being made up of at least one sheet of thin, planar material foldable along a plurality of lines and assemblable into a rigid, three-dimensional, free-standing, upright, folded-plane structure capable of withstanding the combined weight of the product to be displayed, the stand containing at least one horizontal, rectangular aperture therein for mounting the support fixture.

Detailed Description Text (5):
Gripping finger 22 extends rearwardly from face plate 18 at a point in line with the axis of support member 14 at a position sufficiently below the upper edge of face plate 18 that a portion 30 of face plate 18 extends above gripping finger 22 and in contact with support stand front surface 41 immediately above mounting aperture 46 which permits support fixture 12 to resist upward-acting forces exerted upon it without being dislodged from mounting aperture 46 while still permitting support fixture 12 to be installed with access to only one side of support stand 40.

Detailed Description Text (11):
The manufacturer will then partially assemble the display system 10 by inserting gripping finger 22 into aperture 46 until support fixture 12 snaps into place against front face 41 of display stand 40, typically when it is in a horizontal position on a packing table (see FIGS. 4, 5 and 6). A product 50 which is to be displayed is then installed on each of the support fixtures 12, typically by means

of a aperture 51 contained in the product or its package through which the support member 14 of support fixture 12 is inserted to arrange the products 50 in a stacked, tandem fashion on each support fixture 12. An "egg-crate" packing material 52 is then placed over the partially-assembled display stand 40 to isolate the products from one another and to protect them during shipping, and the pre-packed, partially-assembled display system 10 is then packed within a conventional shipping container 54 for shipment to the retail merchant. Upon receipt, the merchant simply removes pre-packed display system 10 from its shipping container 54, assembles the various portions of display stand 40 and removes egg-crate packing material 52 to prepare display system 10 for presentation to the customer. No additional stocking, shelving, etc. are required.

Detailed Description Text (12):
In the upright position, support fixtures 12 are contilevered outwardly and slightly upward from the front surface 41 of display stand 40 such that the pre-packed product 50 are suspended in an aligned, stacked fashion, the outermost product being easily seen and accessed by a purchaser on a last-in-first-out basis (see FIG. 6). In the event the retail merchant or a purchaser inadvertently applies an upward-activing force to support fixture 14 during installing or removal of a display product 50, support fixture 12 will not easily be dislodged from support stand 40.

CLAIMS:

1. A support fixture for use in combination with a pre-packed product display system of the type having a folded-plane support stand containing at least one horizontal, rectangular aperture therethrough for mounting said support fixture therein, comprising:

a faceplate having a substantially planar rear surface for imparting turning moments to the front surface of said support stand in a region about said aperture;

an L-shaped, substantially planar gripping finger having a cross section slightly less than that of said rectangular aperture such that said finger is substantially coextensive with said aperture to prevent movement of said finger within said aperture by forces acting on said faceplate in a direction parallel thereto, said finger being attached to said faceplate rear surface at a position sufficiently below the upper edge of said faceplate such that a portion of said faceplate rear surface extends above said gripping finger and in contact with said support stand front surface immediately above said aperture when said fixture is mounted therein for resisting moments acting upwardly on said faceplate, said gripping finger extending rearwardly from said faceplate rear surface through said aperture for a distance slightly greater than said support stand material thickness and downwardly for a length sufficient to grip said support stand material firmly between said finger and said faceplate rear surface and mount said faceplate to said support stand without additional fastening means, said gripping finger being curved rearwardly at the lower end thereof to permit insertion thereof through said aperture from the front surface of said stand without requiring access to the back side of said stand and being sprung inwardly toward said faceplate to increase the gripping force upon said stand material; and

an elongated support member cantilevered outwardly from the front of said faceplate for supporting said product therefrom, said support member being angled slightly upward from the horizontal and terminated in an upturned portion at its outer end.

6. A foldup, pre-packable product display system, comprising:

a support stand made of at least one sheet of flat, thin, planar material foldable along a plurality of lines in said sheet and assembleable to form a rigid,

threedimensional, freely-standing, upright, folded-plane structure capable of withstanding the combined weight of said product to be displayed, said support stand having at least one generally vertical, planar, forward-facing side, said vertical side having at least one horizontal, rectangular mounting aperture therethrough; and

an elongated product support fixture having one end cantilevered outwardly from said stand at a slight inclination to the horizontal when said stand is in said upright position for suspending said product therefrom in a displayed position, said support fixture having a second, mounting end adapted for insertion into said mounting aperture from said forward-facing side of sid support stand without requiring access to the back side of said stand, said mounting end having means located thereat for gripping said support stand sheet material through said rectangular aperture and for coupling loads applied to said fixture from any direction to said support stand such that said fixture is resistant to withdrawal from said aperture regardless of the attitude of said support stand, whereby said product may be prepacked onto said partially-assembled fixture and support stand and said pre-packed stand may be packaged for transporting before said stand is assembled upright for display.

9. The product display sytem of claim 8, wherein said product support fixture further comprises:

a faceplate having a substantially planar rear surface for imparting turning moments to the front surface of said support stand in a region about said aperture;

an L-shaped, substantially planar gripping finger having a cross section slightly less than that of said rectangular aperture attached to said faceplate rear surface at a position sufficiently below the upper edge of said faceplate such that a portion of said faceplate rear surface extends above said gripping finger and in contact with said support stand front surface immediately above said aperture when said fixture is mounted therein for resisting moments acting upwardly on said faceplate, said gripping finger extending rearwardly from said faceplate rear surface through said aperture for a distance slightly greater than said support stand material thickness and downwardly for a length sufficient to grip said support stand material firmly between said finger and said faceplate rear surface, said gripping finger being curved rearwardly at the lower end thereof to permit insertion thereof through said aperture from the front surface of said stand without requiring access to the back side of said stand and being sprung inwardly toward said faceplate to increase the gripping force upon sand stand material; and

an elongated support member cantilevered outwardly from the front of said faceplate for supporting said product therefrom, said support member being angled slightly upward from the horizontal and terminated in an upturned portion at its outer end.

First Hit Fwd Refs

End of Result Set

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L1: Entry 4 of 4 File: USPT Jun 9, 1987

US-PAT-NO: 4671417
DOCUMENT-IDENTIFIER: US 4671417 A

TITLE: Pre-pack product display system with support fixture

DATE-ISSUED: June 9, 1987

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
O'Brien; Paul	Seal Beach	CA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
O.B.I. Co.	Seal Beach	CA			02

APPL-NO: 06/ 811175 [PALM]
DATE FILED: December 20, 1985

INT-CL: [04] A47F 7/00

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US-CL-CURRENT: 211/59.1; 248/222.11, 248/224.8, 248/231.81

FIELD-OF-SEARCH: 248/220.3, 248/220.2, 248/221.3, 248/231.8, 211/57.1, 211/59.1

PRIOR-ART-DISCLOSED:

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Search Selected Search ALL Clear

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3469710	September 1969	Yosbikian	248/222.2
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☐	4441619	April 1984	Gibitz	211/59.1 X
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FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
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ART-UNIT: 355

PRIMARY-EXAMINER: Gibson, Jr.; Robert W.

ATTY-AGENT-FIRM: Poms, Smith, Lande & Rose

ABSTRACT:

A retail product display system which may be pre-packed with product before shipment has a support fixture and a support stand made up of at least one sheet of thin, planar material foldable along a plurality of lines and assemblable into a rigid, three-dimensional, free-standing, upright, folded-plane structure containing a plurality of horizontal, rectangular apertures for mounting the support fixture therein. The support fixtures have one end cantilevered outwardly from the stand at a slight inclination to the horizontal for suspending the product therefrom, and a mounting end adapted to permit insertion into the mounting apertures from one side only of the display stand with means located thereat for gripping the support stand material through the mounting aperture and for coupling loads applied to the fixture from any direction to the support stand such that the fixture is resistant to withdrawal from the mounting aperture regardless of the attitude of the support stand. 7

13 Claims, 8 Drawing figures

First Hit Fwd Refs

Generate Collection Print

L1: Entry 2 of 4 File: USPT Dec 26, 2000

US-PAT-NO: 6167382
DOCUMENT-IDENTIFIER: US 6167382 A

TITLE: Design and production of print advertising and commercial display materials over the Internet

DATE-ISSUED: December 26, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sparks; Don R.	Evanston	IL		
Scott; M. James	Chicago	IL		
Tremel; Wally	Chicago	IL		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
F.A.C. Services Group, L.P.	Chicago	IL			02

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FIELD-OF-SEARCH: 705/26, 705/27, 705/10, 705/14, 705/1, 283/56, 707/517, 707/520

PRIOR-ART-DISCLOSED:

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Search Selected Search ALL Clear

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FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
0 674 277 A2	September 1995	EP	
0 814 425 A2	December 1997	EP	
WO 98 04988 A1	February 1998	WO	
WO 98 10356 A1	March 1998	WO	

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PhotoDisc Inc, PhotoDisc Web Site Wins Prestigious Electronic Commerce Award; Communications Week and Network Computing Name PhotoDisc the Best Commerce Site on the Internet, Business Wire, Dialog File 621:New Product Announcement, Sep. 24, 1996.
"HP Introduces Leading-Edge Intranet Solutions, Partners, Services and Products; Fortune 500 Companies Act Now to Create Their Extended Enterprise with HP Domain Intranet Solutions", Business Wire, Dialog File 621:New Product Announcement, Mar. 12, 1997.
"Excalibur and New Mexico Software Partner to Offer Kodak's FlashPix Images over the Internet", Business Wire, Dialog File 16:Promt, Apr. 14, 1997.
"Corbis Broadens Visual Content Offerings", Business Wire, Dialog File 16:Promt, Feb. 3, 1998.
Jorgensen, Dennis D., "Now, We Have a Brief Word for our Sponsors (Sponsors of the 1997 American Marketing Assn Edison Awards)", Marketing News, vol. 32, No. 7, p. 4, Mar. 30, 1998.

ART-UNIT: 271

PRIMARY-EXAMINER: Voeltz; Emanuel Todd

ASSISTANT-EXAMINER: Hayes; John W.

ATTY-AGENT-FIRM: Perkins; Jefferson

ABSTRACT:

A client at a remote site may order each of a series of images from a low resolution image database, and may then assemble these images and text into a marketing piece. Once assembly is complete, the client orders the system proprietor to produce the marketing piece according to the client's specifications. The client

communicates to the system proprietor via a web site on the Internet, which has associated with it a pair of applications for the ordering of images and the assembly of marketing pieces. The client assembles the marketing piece according to one of a series of predefined templates, which constrains the choices which the client has such that the produced marketing piece will have the look and feel dictated by the client's company. The templates, each of which has associated with it a series of slots for the placement of image or text, also permit easy assembly of a marketing piece by simply specifying the material which goes within the slot. A catalog of low-resolution images are sent over the Internet to the client for his or her consideration, and a corresponding set of high-resolution images are used to produce the marketing pieces.

1 Claims, 64 Drawing figures

First Hit Fwd Refs

Generate Collection Print

L1: Entry 1 of 4 File: USPT Jan 16, 2001

US-PAT-NO: 6175825
DOCUMENT-IDENTIFIER: US 6175825 B1

TITLE: Method for debiting shipping services

DATE-ISSUED: January 16, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Fruechtel; Ingrid	Berlin			DE

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Francotyp-Postalia AG & Co.	Birkenwerder			DE	03

APPL-NO: 09/ 106491 [PALM]
DATE FILED: June 29, 1998

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
DE	197 33 605	July 29, 1997

INT-CL: [07] G07 B 17/00

US-CL-ISSUED: 705/404; 705/30, 705/410
US-CL-CURRENT: 705/404; 705/30, 705/410

FIELD-OF-SEARCH: 705/30, 705/400, 705/404, 705/410

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected Search ALL Clear

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
4024380	May 1977	Gunn	235/61.9A
4376299	March 1983	Rivest	364/900
4447890	May 1984	Duwel et al.	705/410
4495581	January 1985	Piccione	705/402
4511793	April 1985	Racanelli	235/375

☐	4649266	March 1987	Eckert	235/432
☐	4713761	December 1987	Sharpe et al.	705/30
☐	4812994	March 1989	Taylor et al.	705/410
☐	4837701	June 1989	Sansone et al.	705/404
☐	4855920	August 1989	Sansone et al.	364/464.02
☐	4872705	October 1989	Hartfeil	283/67
☐	4900904	February 1990	Wright et al.	235/381
☐	4907161	March 1990	Sansone et al.	364/464.02
☐	5040132	August 1991	Schuricht et al.	364/523
☐	5111030	May 1992	Brasington et al.	235/375
☐	5117364	May 1992	Barns-Slavin et al.	705/402
☐	5200903	April 1993	Gilham	705/408
☐	5222018	June 1993	Sharpe et al.	705/30
☐	5233657	August 1993	Gunther	380/23
☐	5319562	June 1994	Whitehouse	705/403
☐	5388049	February 1995	Sansone et al.	705/406
☐	5586036	December 1996	Pintsov	705/408
☐	5586037	December 1996	Gil et al.	705/407
☐	5717596	February 1998	Bernard et al.	364/464.02
☐	5826247	October 1998	Pintsov et al.	705/404
☐	5923406	July 1999	Brasington et al.	355/40
☐	5978781	November 1999	Sansone	705/408
☐	6010156	January 2000	Block	281/2
☐	6032138	February 2000	McFiggans et al.	705/410
☐	6064994	May 2000	Kubatzki et al.	705/410

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FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
2201051	July 1972	DE	
31 26 786	April 1982	DE	
3644230	July 1987	DE	
36 24 116	January 1988	DE	
3903718	August 1989	DE	
3808616	September 1989	DE	
4034292	April 1992	DE	
3126785	July 1992	DE	
3644231	May 1998	DE	
0747846	May 1996	EP	
2730575	April 1999	FR	

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Quinn: "What's new for airfreight shippers? (service offerings)(includes related article)"; Traffic Management, Jan. 1994, v33, n1, p. 57.

ART-UNIT: 271

PRIMARY-EXAMINER: Cosimano; Edward R.

ATTY-AGENT-FIRM: Schiff Hardin & Waite

ABSTRACT:

In a method for debiting shipping services on the basis of the respective transport service fee schedules of carriers, accounting operations of the services of various carriers are standardized and simplified by undertaking a central accounting, and the debiting of the services ensues individually or summed. A user program is loaded into a modified postage meter machine that has a printer and a telecommunication unit, at least one service fee table of a carrier being selectable therefrom. The weight or some other physical quantity of a shipment is entered the modified postage meter machine, and a service value is calculated therein in conjunction with the selected shipping parameters. The printer device of the modified postage meter machine prints out an identity ticket that contains the shipping parameters, at least including the shipping fee for the shipment. The information characterizing the shipment are intermediately stored in the modified postage meter machine and the implemented value identification of the shipment is transmitted via a telecommunication connection to a remote data center, either individually or summed. The data received in the data center are acquired, compiled and separately accounted for for each carrier with an accounting program and an invoice is prepared at the data center and is communicated to the consignor for payment. All steps involving storage or handling of funds or monetary credit associated with the shipping service take place exclusively at the data center.

20 Claims, 7 Drawing figures

First Hit Fwd Refs

Generate Collection Print

L1: Entry 3 of 4 File: USPT Mar 7, 2000

US-PAT-NO: 6034687
DOCUMENT-IDENTIFIER: US 6034687 A

TITLE: Graphical interface for a computer hardware resource having a surrealistic image of a real office machine

DATE-ISSUED: March 7, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Taylor; Billy P.	Houston	TX		
Czerwinski; Mary P.	The Woodlands	TX		
Schoggins, III; Willie Lawson	Spring	TX		
Lee; Young Howard	Houston	TX		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Compaq Computer Corporation	Houston	TX			02

APPL-NO: 08/ 450732 [PALM]
DATE FILED: May 26, 1995

PARENT-CASE:
This is a continuation of copending application Ser. No. 08/303,627, filed Sep. 9, 1994.

INT-CL: [07] G06 F 3/14

US-CL-ISSUED: 345/351
US-CL-CURRENT: 345/775

FIELD-OF-SEARCH: 395/700, 395/650, 395/682, 395/680, 395/683, 395/326, 395/330, 395/334, 395/348, 395/349, 395/358, 345/473, 345/349, 345/348, 345/351, 345/335

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected Search ALL Clear

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
5283856	February 1994	Gross et al.	
5327558	July 1994	Burke et al.	

☐	5347628	September 1994	Brewer et al.	345/351
☐	5423000	June 1995	Kimura et al.	
☐	5455854	October 1995	Dilts et al.	379/201
☐	5596694	January 1997	Capps	395/152
☐	5684970	November 1997	Asuma et al.	345/348

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FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
0 444 251 A3	September 1991	EP	
2 276 520	September 1994	GB	

OTHER PUBLICATIONS

Clark, "How a Woman's Passion and persistence Made [Bob]", The Wall Street Journal, Section B, Tuesday, Jan. 10, 1995.
"New program opens doors into Windows", undated article about Packard Bell's Navigator package.
BusinessWire Bulletin Board article entitled "Packard Bell delivers first all-in-one software program that entertains, organizes, troubleshoots: breakthrough Windows shell defines user-friendly", Mar. 8, 1994, NOTE: Best available copy.
Katsuyama et al., "Multimedia [Paper] Services/Human Interfaces and Multimedia Communication Workstation for Broadband ISDN Environments", IEICE Transactions on Communications, vol. E76-B, No.3, Mar. 1993, Tokyo, Japan, pp. 220-228.
McNinch, "Screen-Based Telephony", IEEE Communications Magazine, vol. 28, No. 4, Apr. 1990, pp. 34-38.
Yvon, "Intelligent Telecommunication Services: Adaptive And Demonstrational User Interfaces", Proceedings of the Third Golden West International conference On Intelligent Systems, vol. 2, Jun. 6-8, 1994, Las Vegas, Nevada, pp. 691-698.
Hirsch et al., "ProgREDSI: A Communications Manager", SuperCOMM/ICC '92; Discovering A New World of Communications, vol. 4, Jun. 14-18, 1992, pp. 1898-1902.

Foulks, "Best Voice Forward", PC World, vol. 11, No. 12, Dec. 1993, pp. 290-291.
Kalimantzalis et al., "PC-Phone: Adding special telephone secretary functions to a PC", 6th Meiterranean Electrotechnical Conference Proceedings, vol. 1, May 22-24, 1991, pp. 530-533.

ART-UNIT: 277

PRIMARY-EXAMINER: Heckler; Thomas M.

ATTY-AGENT-FIRM: Conley, Rose & Tayon, P.C. Heim; Michael F. Harris; Jonathan M.

ABSTRACT:

A method for controlling flow, through a computer hardware resource, of information to and from computer applications. When a flow of information is initiated from one of the applications, a determination is made whether the resource is being accessed by another one of the applications and, if so, the flow of information from the first application is delayed. If not, then the flow of information is enabled. When a flow of information is initiated toward the applications, a determination is made to which one of the applications the information is flowing, and the flow is directed to that one application. A graphical interface associates, in the mind of

a user, a computer hardware resource with a corresponding real office device, the computer resource enabling the computer to function like the consumer device. The graphical interface includes a surrealistic image having physical features which represent functional components of the resource, the physical features of the image resembling corresponding features of the office device; and an animation routine which causes the image to change when the user selects one of the features of the image, thereby invoking the change occurring in a manner which resembles changes to the office device when the corresponding feature of the office device is invoked.

6 Claims, 73 Drawing figures